

X(1,2,8,9,11,12)

P15722
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(12) UK Patent Application (19) GB (11) 2 202 576 A (13)

(43) Application published 28 Sep 1988

(21) Application No 8806022

(22) Date of filing 14 Mar 1988

(30) Priority data

(31) 8706118

(32) 14 Mar 1987

(33) GB

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(51) INT CL⁴

F16B 1/00 B65D 6/16 E05C 3/00

(52) Domestic classification (Edition J):

E2A 162 163 166 190 196 408 410 556 CCC CT
CXX

B8H OG

B8P J

U1S 1791 B8H B8P E2A

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(58) Field of search

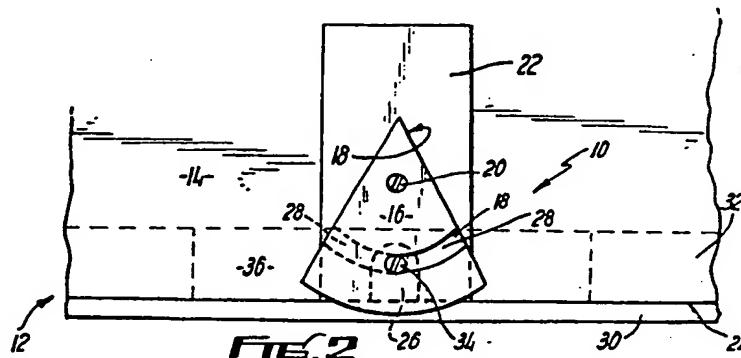
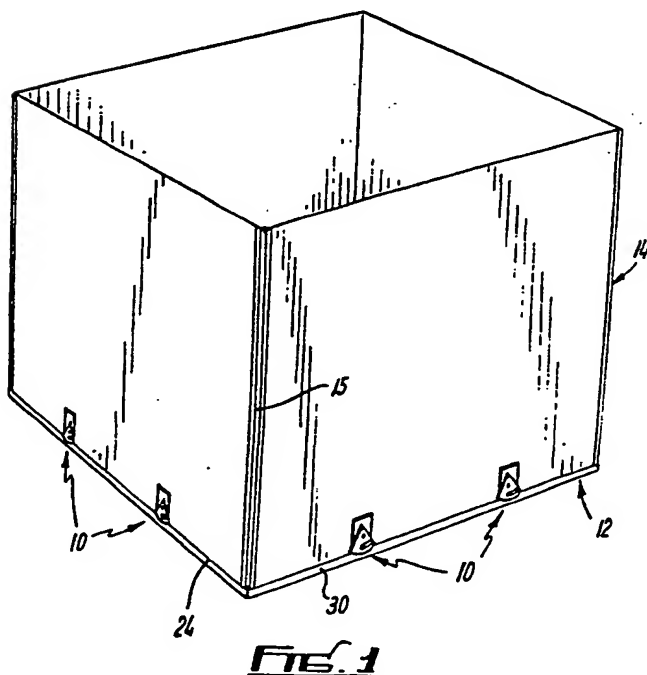
E2A

Selected US specifications from IPC sub-class
E05B

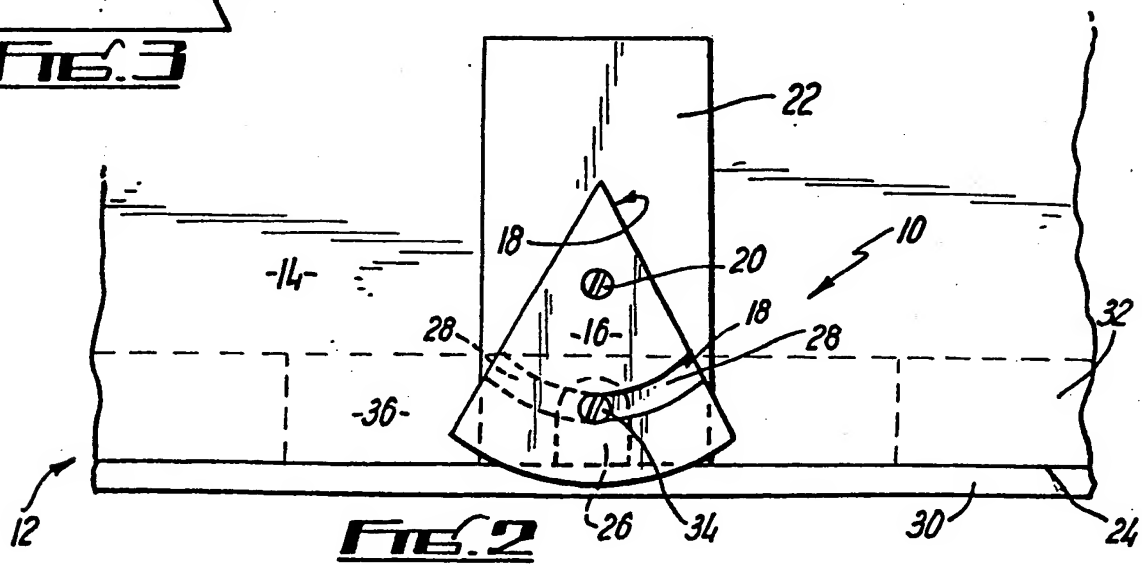
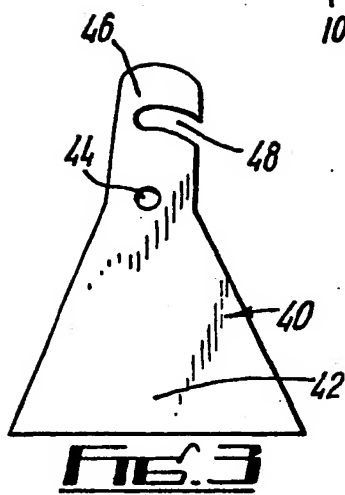
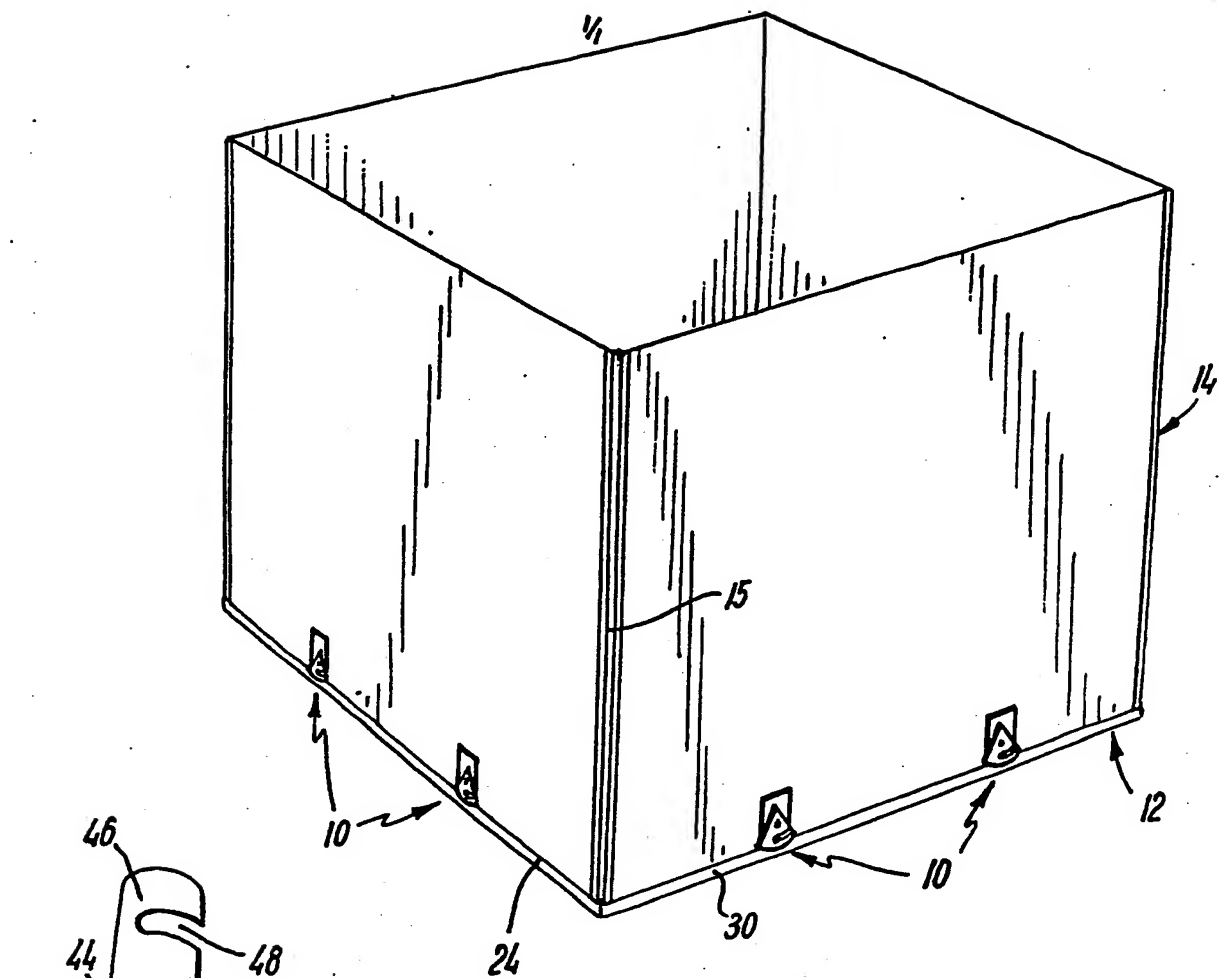
(54) Mounting assemblies

(57) The assemblies 10 connect a base 12 to the walls of a collapsible packing case 14, each assembly comprising a pair of plate members 16, 18 rotatably mounted on a screw 20 on the wall and each member 16, 18 including an arcuate slot 28 open at one end, and engageable with a projection e.g. a screw 34 provided on the base 12. The slots on the members 16, 18 open in opposite directions to each other so that after assembly of the case 14 away from the horizontal will cause a member 16/18 to pivot but the other member will remain in position to hold base 12 and case 14 together.

Figure 3 illustrates a plate member (40) for connecting a lid to the packing case, a number of such plate members being utilized.



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This invention relates to a connection assembly, and particularly but not exclusively to an assembly for detachably connecting the base of a collapsible packing case to the side walls thereof.

Conventional packing cases occupy the same space whether empty or full, and tend to be quite bulky. Due to this disadvantage, collapsible packing cases have been used. Heretofore the bases of such collapsible packing cases have been mounted on the side walls using a plurality of screws or other similar means. The connecting operation is thus obviously time consuming and requires the use of tools.

According to the present invention there is provided an assembly for connecting first and second components together, the assembly comprising projection means attachable to the first component and a latching means rotatably attachable to the second component, the latching means including receiving means engageable with the projection means, the weight distribution of the latching means being such that in use, the receiving means engages the projection means when the first and second components are within a predetermined range of orientations.

Preferably the latching means comprises at least one plate member including a slot open at one end.

The latching means preferably comprises a pair of the plate members, and desirably each of the plate members engages the projection means from opposite directions.

Desirably the open ends of the slots of the plate members face in substantially opposite directions.

The plate members may each have a substantially pear-shaped configuration and be pivotable about a point adjacent the narrow ends of the pear-shape. The slot in each of the plate members may be located towards the broad end of the pear-shape and may be arcuate about the pivot point.

Alternatively, the slot may be located in a tab situated on the opposite side of the pivot point to the broad end of the pear-shape.

An embodiment of the present invention will now be described by way of example only with reference to the accompanying drawings, in which :-

Fig. 1 is a perspective view of a collapsible packing case incorporating a plurality of mounting assemblies according to the invention;

Fig. 2 is a diagrammatic side view of one of the mounting assemblies of Fig. 1; and

Fig. 3 is a diagrammatic side view of part of a modified mounting assembly.

Referring to Figs. 1 and 2 of the drawings, a plurality of assemblies 10 are provided for connecting a base 12 to walls of a collapsible packing case 14. Each assembly 10 comprises two identical plate members 16, 18 rotatably mounted on a screw 20. The latter is fixed on to a plate 22 mounted on the outside of a respective wall of the case 14 adjacent to a lower edge 24 thereof. The plate 22 is substantially rectangular with its shorter face parallel to the lower edge 24. An inverted U-shaped cut-out 26 is provided in the plate 22 and in the underlying case 14, adjacent to the edge 24.

The plate members 16, 18 are each substantially pear-shaped and have a hole adjacent the narrow end through which aligned holes the screw 20 passes. An open-ended slot 28 is provided towards the wider end of

each of the plate members 16,18. The slot 28 is arcuate about the mounting hole and extends over a distance slightly greater than half the width of the members 16,18. The plate members 16,18 are mounted back-to-back on the screw 20 so that their respective slots 28 open in opposite directions.

As shown in Fig. 1, a substantially square collapsible case 14 has two mounting assemblies 10 substantially equally spaced on each side wall. The case 14 is provided with W-shaped hinges 15 along its edges.

The base 12 comprises a lower portion 30 of the same configuration as the case 14, and an upper portion 32 attached substantially centrally to the lower portion 30 and of a slightly smaller shape. A plurality of screws 34 are mounted on plates 36 on the upper portion 32 and extend outwardly therefrom beyond the lower portion 30. The screws 34 are located such that when the case 14 is placed on the base 12, with the side walls of the case resting on the lower portion 30, each of the screws 34 passes into a respective one of the cut-outs 26, and the associated members 16,18 may be rotated such that the screws 34 engage in the respective slots 28.

In use, the case 14 is taken from its flat storage

state and opened out and placed on the base 12 with its side walls resting on the lower portion 30. The members 16,18 are rotated in opposite directions so that the screws 34 engage in the respective slots 28. The base 12 is then connected to the case 14. If the base 12 is inclined away from the horizontal one of the members 16,18 may pivot about the screw 20, and may even disengage from the screw 34. However the other of the members 16,18 will remain in position, the closed end of the slot 28 resting against the screw 34, thus holding the base 12 and case 14 together.

The invention thus describes an assembly for mounting the base on a packing case that can be readily and rapidly engaged and disengaged without the use of any tools. The assembly permits the case to be tilted. The mounting of the screws 20,34 on the plates 22,36 spreads the loads applied to the base and case, and thus strengthens the mounting. The assembly is very simple in construction and can thus be inexpensively produced. The components can be made to be robust and the assembly can thus be used a large number of times.

Fig. 3 shows a plate member 40 for connecting a lid (not shown) to the packing case 14. The member 40 comprises a triangular portion 47 with a hole 44 provided

towards the apex. A tab 46 extends from the hole 44 on the opposite side thereof to the portion 42. An arcuate slot 48 is provided in the tab 46. The tab 46 is considerably smaller and thus lighter than the portion 42 so that when the member 40 is free to rotate about the hole 44 the tab 46 will point upwardly. It will be appreciated that a number of such plate members arranged in opposite facing pairs could be used to secure the lid, the slots 48 engaging with corresponding screws provided on the lid.

Various modifications may be made without departing from the invention. For example the plate members may be made a different shape. The screws could be replaced by other projection means, which could be mounted to the case and base in a different manner. The packing case, base and lid could be made from aluminium, with a frame supporting sheets of aluminium. Conventional hinges could be provided between the case walls.

Claims:

1. An assembly for connecting first and second components together, the assembly comprising projection means attachable to the first component and a latching means rotatably attachable to the second component, the latching means including receiving means engageable with the projection means, the weight distribution of the latching means being such that in use, the receiving means engages the projection means when the first and second components are within a predetermined range of orientations.

2. An assembly according to claim 1, in which the latching means comprises at least one plate member including a slot open at one end.

3. An assembly according to claim 2, in which the latching means preferably comprises a pair of the plate members.

4. An assembly according to claim 3, in which each of the plate members engages the projection means from opposite directions.

5. An assembly according to claim 4, in which the open ends of the slots of the plate members face in substantially opposite directions.

6. An assembly according to any of claims 2 to 5, in which the or each plate member has a substantially pear-shaped configuration and is pivotable about a point adjacent the narrow end of the pear-shape.

7. An assembly according to claim 6, in which the slot in each plate member is located towards the broad end of the pear-shape.

8. An assembly according to claim 6 or 7, in which the slot is arcuate about the pivot point.

9. An assembly according to claim 6, in which the slot is located in a tab situated on the opposite side of the pivot point to the broad end of the pear-shape.

10. A packing case incorporating a connecting assembly as claimed in any of claims 1 to 9.

11. A connection assembly substantially as hereinbefore described with reference to the accompanying drawings.

12. A packing case substantially as hereinbefore described with reference to the accompanying drawings.

13. Any novel subject matter or combination including novel subject matter herein disclosed, whether or not within the scope of or relating to the same invention as any of the preceding claims.

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